9-16-2004

DDASaccident460

Humanitarian Demining Accident and Incident Database
AID

DDAS Accident Report

Accident details

Report date:	04/01/2008	**Accident number:**	460
Accident time:	08:21	**Accident Date:**	16/09/2004
Where it occurred:	MF ID 11290, Odmutsko Polje 1 - Grebnice, Domaljevac-Samac	**Country:**	Bosnia Herzegovina
Primary cause:	Management/control inadequacy (?)	**Secondary cause:**	Field control inadequacy (?)
Class:	Excavation accident	**Date of main report:**	05/10/2004
ID original source:	None	**Name of source:**	BHMAC WL
Organisation:	[Name removed]		
Mine/device:	PROM-1 AP Bfrag	**Ground condition:**	leaf litter metal scrap wet woodland (bush)
Date record created:	04/01/2008	**Date last modified:**	04/01/2008
No of victims:	2	**No of documents:**	1

Map details

Longitude:		**Latitude:**	
Alt. coord. system:	y=6 542 141 x=4 988 597	**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

inadequate area marking (?)

protective equipment not worn (?)

visor not worn or worn raised (?)

inadequate equipment (?)

inadequate metal-detector (?)

squatting to excavate (?)

Accident report

This report was made available in 2006 and translated in 2007 specifically for entry to the DDAS. The content of the reports that were made available has been edited for anonymity and is summarised below.

[Work was being conducted by a partnership between two national commercial demining groups.]

An accident report was written by an investigative committee of BHMAC and signed by [Name removed] (presiding the committee), [Name removed] and [Name removed]. Another document from BHMAC was available: “Lessons Learned from the Demining Accident 16 September 2004”, dated 5 October 2004 (the same date as the accident report), signed by the BHMAC director, [Name removed]. This second document contains no new information and repeats the recommendations of the investigative committee.

Conditions at the site

The minefield is in the village Grebnice, stretching along the road Orašje-Šamac. 50 metres south from the minefield there is a primary school. The minefield and the place of accident is swampy with soft soil, thick grass, bush and some trees. The area is flat and heavily contaminated with litter and metal peaces. The accident occurred during the assignment labelled ID 11290. The geographical coordinates of two victims were:

y = 6 542 141, x = 4 988 597 for the fatally injured deminer,

y = 6 542 198, x = 4 988 607 for the injured deminer.

The weather at the time of the accident was cloudy and it had just started to rain. Due to rain the work has been stopped. The accident happened immediately after the work had been stopped.

[Accident site (crater in centre).]

The area around the accident has been disturbed after the accident and some pegs and tapes were obviously placed after the accident.

The purpose of the demining task

The main reason was to allow safe school attendance. Other reasons: the supervision of the state border (50 metres from Sava river, the border to Croatia), safe usage of the nearby road Orašje-Šamac, enabling the rebuilding of the infrastructure, agricultural use of the land and general safety.

The work-site layout and marking

The work-site had not been established according to the National Standards of Bosnia and Herzegovina and the SOPs. The administrative areas were established on the safe distance, but the area was not properly marked.

[Vegetation at the site.]

Supervision and discipline on the work-site

The highest level of supervision was done by the work-site leader [Name removed], working for UG ZOM. The internal quality control (IQC) was done by [Name removed], who visited the work-site 26 July, 30 July, 1 August, 2 August, 5 August and 12 September 2004. In his reports, he failed to make a note about obvious important errors regarding SOPs.

The team leader [Name removed], working for [Partner commercial demining group], was responsible for the deminers where the accident happened. His did not supervise well; he had noticed that the deminers work without PPE, but he did nothing.

The company management never visited the work-site, although that was necessary, concerning the organisation and discipline at the work-site. There is an impression that the relations between [partner demining groups] are not in order; we were informed about some earlier problems.

Quality assurance

Until the day of the accident, [the site] has evidenced the following irregularities: two deminers working without helmets, no clearance overlap between the lanes, increased productivity, work 70 cm ahead of the base line, detectors Ebinger 2634 and 2644 have sensitivity lower than allowed. [The demining group] also gave some warnings and recommendations: the team leader was warned on the movements of the local population nearby; too much metal contamination, 100 m^2 were returned for clearance; metal detector MD-8 gives continuously a signal, 45 m^2 returned for clearance; recommended to increase the mutual distance 50 m due to possible PROM-1.

The investigative committee has established that the documentation from the work-site is not adequate, not according to the Standard of Bosnia and Herzegovina. The monitoring from the monitoring organisations had not been performed.

Medical support, injuries

The medical support was according to the Standard of Bosnia and Herzegovina (equipment, vehicle and personnel). The paramedic was on the place of the accident in 2 or 3 minutes. First he approached deminer [Victim No.1] in lane 4 and established heavy injuries. Than the paramedic went to lane 5 to [Victim No.2], while a deminer who used to be a paramedic of APM stayed with [Victim No.1]. [Victim No.2] was conscious; his left upper leg was heavily bleeding. After receiving first aid, he was transported to the hospital in Orašje (14.6 km away). He survived. [Victim No.1] had injuries of upper legs, head and other body parts. After being brought into the vehicle he did not show any signs of life. The official cause of death: explosive wounds on the whole body.

The two deminers were insured according to the law and the Standard for Clearance of Landmines and UXO of Bosnia and Herzegovina: 200.000 BAM for death, 250.000 for heavy injuries. However, only 10 of 23 persons present at the work-site have been insured, according to the documentation. Either the documentation was not complete, or the organisation manipulates the insurance.

PPE and tools

The two deminers participating in the accident were not wearing their PPE. (It is not clear from the available documents if any PPE was issued to the deminers.) The team leader claimed that the reason was that he had already given the order to stop the work. PPE could have prevented most of the injuries of [Victim No.2]. The metal detector of [Victim No.1] was checked and it was functioning properly. However, it has been established that some metal detectors were not used at the required sensitivity.

[The detector shown in a site photograph was the Ebinger EBEX 420 PB.]

Demining company [Name removed] had another demining accident 5 August 2004, when the injured deminer did not wear his helmet. [DDAS457]

The mine

The PROM-1 was placed to be activated by a direct contact with the foot, with the star above the ground surface. A tripwire was not found.

Activities of the deminer immediately before the accident

In a non-marked lane, deminer [Victim No.1] tried to identify the source of a metal-detector signal by using a prodder and an excavation tool. He possibly used the prodder and the excavation tool simultaneously to achieve higher productivity. The star of the PROM-1 was above the ground surface. Therefore it is not likely that the mine was activated with a prodder. It is most likely that it was activated with inappropriate excavation tool. The examination of the area cleared in the days before the accident leads to the conclusion that vertical excavation had been performed, which is characteristic for non-demining tools and against the Standard of Bosnia and Herzegovina and the SOP of the company.

Recommendations of the investigative committee

It is recommended to temporarily withdraw the accreditation for demining from the demining organisation [Demining group]; to temporarily withdraw (on 6 months) the personal accreditation for demining from the team leader [Name removed] from [Second Demining

group in partnership]; to mark and clear the area demined between 10 and 16 September 2004 with a stronger control of BHMAC; and to distribute the conclusions and the recommendations of this investigation to demining organisations in Bosnia and Herzegovina.

Conclusion

The deminer worked in a non-marked lane without wearing any PPE. The accident was caused by inappropriate excavation of PROM-1, probably with inappropriate tools. As a consequence, the deminer activating the mine died and another deminer at 59 metres distance suffered severe injuries.

The demining company had violated procedures defined in the Standard for Bosnia and Herzegovina and their own SOPs. The documentation was inadequate and incomplete, the marking was inadequate, metal-detectors were used on lower sensitivities or they were malfunctioning, inadequate excavation (vertical excavation and inadequate tool) was performed, PPE was not used, the recommendation of the investigations of earlier accidents were not followed, some detectors were used with a sensitivity lower than the requirement of the Standard.

Victim Report

Victim number:	610	**Name:**	[Name removed]
Age:		**Gender:**	Male
Status:	deminer	**Fit for work:**	DECEASED
Compensation:	Not made available	**Time to hospital:**	Not recorded
Protection issued:	Frag jacket Helmet Short visor	**Protection used:**	None

Summary of injuries:

FATAL

COMMENT: After being brought into the ambulance he did not show any signs of life. The official cause of death: explosive wounds on the whole body. No Medical report was made available.

Victim Report

Victim number:	611	**Name:**	[Name removed]
Age:		**Gender:**	Male
Status:	deminer	**Fit for work:**	presumed
Compensation:	Not made available	**Time to hospital:**	Not recorded
Protection issued:	Frag jacket	**Protection used:**	None

Short visor

Helmet

Summary of injuries:

severe Leg

COMMENT: See Medical report.

Medical report

No formal medical report was made available.

After the accident Victim No.2 was conscious and his left upper leg was heavily bleeding. After receiving first aid, he was transported to the hospital in Orašje (14.6 km away). He survived.

Analysis

The primary cause of this accident is listed as a “Management control inadequacy” because the investigators recommended the removal of accreditation from the organisation because of the many breaches of SOP at the task, including an apparent failure to insure deminers adequately. The secondary cause is listed as a “Field control inadequacy” because the field controllers lacked the authority (or the knowledge) to impose the safety requirements in the SOPs.

The second victim suffered a severe leg wound at 59 metres, which is the farthest secondary injury from a PROM-1 in HD on record, and may require a revision of safe working distances in areas where active PROM-1s can be anticipated. That said, the victim’s PPE would not have covered his legs anyway. The 360 degree spread of fragments over this distance makes it very unlikely that he was hit by more than one fragment.